THAT WHICH IS CLAIMED:

1. A shock isolation system for reducing a transmission of energy in the form of shocks between first and second devices, the system comprising:

at least two linear bearing assemblies extending substantially parallel in an axial direction between the first and second devices, each bearing assembly having a shaft member connected to one of the first and second devices and a linear bearing connected to the other of the first and second devices, the linear bearings being configured to move axially on the shaft members such that the first and second devices are configured for relative motion therebetween in the axial direction and the bearing assemblies restrain a rotation between the first and second devices about an axis defining the axial direction; and

at least two isolators configured to be axially loaded by a relative motion between the first and second devices in the axial direction, the isolators thereby being deformed to at least partially reduce the transmission of energy between the devices.

2. A shock isolation system according to Claim 1 wherein centers of gravity of the first and second devices are positioned out of a plane defined by at least some of the linear bearing assemblies and isolators.

3. A shock isolation system according to Claim 1 wherein the linear bearing assemblies are configured to be independently axially moved such that the first device is configured to rotate relative to the second device about an axis transverse to the axial direction.

4. A shock isolation system according to Claim 1 wherein the linear bearing of each respective bearing assembly extends circumferentially around the shaft member of the respective bearing assembly and has a plurality of balls for rollably contacting the shaft member.

5. A shock isolation system according to Claim 1 wherein at least two of the isolators extend circumferentially around the shaft member of a respective one of the linear bearing assemblies, the isolators being positioned opposite the linear bearing of the respective bearing assembly such that at least one of the isolators is compressed when the linear bearing of the respective bearing assembly moves axially.

6. A shock isolation system according to Claim 1 wherein each isolator extends between the first and second devices such that the isolators are compressed when the first and second devices are moved relatively toward each other.

7. A shock isolation system according to Claim 1 wherein the isolators are formed of at least one of the group consisting of rubber and elastically deformable polymers.

8. A shock isolation system according to Claim 1 wherein at least some of the isolators comprise springs.

9. A shock isolation system according to Claim 1 wherein the linear bearing assemblies and isolators are arranged in a substantially planar and polygonal configuration.

10. A shock isolation system according to Claim 1 wherein at least one of the first and second devices is a boost vehicle configured to provide thrust for propulsion.

11. A shock isolation system according to Claim 10 wherein at least one of the first and second devices is a kill vehicle.

12. An aerospace vehicle for impacting a target, the aerospace vehicle having a shock isolation system for reducing a transmission of energy in the form of shocks therein, the vehicle comprising:

a boost device structured to provide thrust for moving the aerospace vehicle;

a kill vehicle configured for impacting upon the target;

at least two linear bearing assemblies extending substantially parallel in an axial direction between the boost device and the kill vehicle, each bearing assembly having a shaft member connected to one of the boost device and the kill vehicle and a linear bearing connected to the other of the boost device and the kill vehicle, the linear bearings being configured to move axially on the shaft members such that the boost device and the kill vehicle are configured for relative motion therebetween in the axial direction and the bearing assemblies restrain a rotation between the boost device and the kill vehicle about an axis defining the axial direction; and

at least two isolators configured to be axially loaded by a relative motion between the boost device and the kill vehicle in the axial direction, the isolators thereby being deformed to at least partially reduce the transmission of energy between the boost device and the kill vehicle.

13. An aerospace vehicle according to Claim 12 wherein the kill vehicle is releasably connected to the boost device.

14. An aerospace vehicle according to Claim 12 wherein centers of gravity of the boost device and the kill vehicle are positioned out of a plane defined by at least some of the linear bearing assemblies and isolators.

15. An aerospace vehicle according to Claim 12 wherein the linear bearing assemblies are configured to be independently axially moved such that the kill vehicle is configured to rotate relative to the boost device about an axis transverse to the axial direction.

16. An aerospace vehicle according to Claim 12 wherein the linear bearing of each respective bearing assembly extends circumferentially around the shaft member of the respective bearing assembly and has a plurality of balls for rollably contacting the shaft member.

17. An aerospace vehicle according to Claim 12 wherein at least two of the isolators extend circumferentially around the shaft member of a respective one of the linear bearing assemblies, the isolators being positioned opposite the linear bearing of the respective bearing assembly such that at least one of the isolators is compressed when the linear bearing of the respective bearing assembly moves axially.

18. An aerospace vehicle according to Claim 12 wherein each isolator extends between the boost device and the kill vehicle such that the isolators are compressed when the boost device and the kill vehicle are moved relatively toward each other.

19. An aerospace vehicle according to Claim 12 wherein the isolators are formed of at least one of the group consisting of rubber and elastically deformable polymers.

20. An aerospace vehicle according to Claim 12 wherein at least some of the isolators comprise springs.

21. An aerospace vehicle according to Claim 12 wherein the linear bearing assemblies and isolators are arranged in a substantially planar and polygonal configuration.